"Adoption of innovative mobile payment technologies in Indonesia: The role of attitude"

AUTHORS	Murpin Josua Sembiring (1) Wahyudi Wibowo (1) Grace Citra Dewi (1)
ARTICLE INFO	Murpin Josua Sembiring, Wahyudi Wibowo and Grace Citra Dewi (2022). Adoption of innovative mobile payment technologies in Indonesia: The role of attitude. <i>Innovative Marketing</i> , 18(2), 186-197. doi:10.21511/im.18(2).2022.16
DOI	http://dx.doi.org/10.21511/im.18(2).2022.16
RELEASED ON	Thursday, 23 June 2022
RECEIVED ON	Saturday, 05 March 2022
ACCEPTED ON	Thursday, 26 May 2022
LICENSE	This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Innovative Marketing "
ISSN PRINT	1814-2427
ISSN ONLINE	1816-6326
PUBLISHER	LLC "Consulting Publishing Company "Business Perspectives"
FOUNDER	LLC "Consulting Publishing Company "Business Perspectives"

P	B	===
NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
54	3	1

[©] The author(s) 2022. This publication is an open access article.





BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives" Hryhorii Skovoroda lane, 10, Sumy, 40022, Ukraine

www.businessperspectives.org

Received on: 5th of March, 2022 Accepted on: 26th of May, 2022 Published on: 23rd of June, 2022

© Murpin Josua Sembiring, Wahyudi Wibowo, Grace Citra Dewi, 2022

Murpin Josua Sembiring, Dr., Associate Professor, Management Department, Faculty of Economics and Business, Universitas Ma Chung, Indonesia. (Corresponding author)

Wahyudi Wibowo, Dr., Assistant Professor, Management Department, Faculty of Business, Widya Mandala Catholic University Surabaya, Indonesia.

Grace Citra Dewi, Dr., Assistant Professor, Management Department, Faculty of Business, Widya Mandala Catholic University Surabaya, Indonesia.

(0)

This is an Open Access article, distributed under the terms of the Creative Commons Attribution 4.0 International license, which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Conflict of interest statement: Author(s) reported no conflict of interest Murpin Josua Sembiring (Indonesia), Wahyudi Wibowo (Indonesia), Grace Citra Dewi (Indonesia)

ADOPTION OF INNOVATIVE MOBILE PAYMENT TECHNOLOGIES IN INDONESIA: THE ROLE OF ATTITUDE

Abstract

Financial service industries have experienced dynamic technological innovation. The research objective of this paper is to identify factors influencing the intentions of potential users to adopt the newly launched innovative mobile payment applications. This study proposes a theoretical framework based on the technology acceptance model (TAM). One hundred sixty-nine respondents were involved in this investigation, and the data were gathered using an online survey. The collected data were analyzed using the SEM technique. The findings reveal that users' attitude has an essential role in mediating the impact of the benefit and trust on the intention to adopt a mobile payment technology. This study also shows different results from the previous studies regarding user perceptions of attitudes. The ease of use of innovative digital applications does not significantly affect attitudes.

Furthermore, an attitude positively impacts users' intention to adopt innovative mobile payment applications. Therefore, user attitudes have an essential role in communicating the impact of the benefits derived from the intention to adopt an innovative mobile payment application. This study proves that innovative digital application providers need to pay attention to strategies for promoting their services. It is also vital for the providers to include the trust component in their service.

Keywords attitude, innovation, financial service, technology

adoption

JEL Classification M30, M31, M37

INTRODUCTION

With the rapid advancement of digital technologies, the financial services business has undergone technological innovation known as Fintech (financial technology). Fintech transactions include payments, loans, wealth management, and insurance. Fintech also affects the development of new business models, applications, processes, or products that significantly impact financial markets and institutions and the supply of financial services (Arjunwadkar, 2018). Fintech provides users with an efficient, rapid, and easy-to-use experience, so customers can usually complete various transactions in a couple of moments using only a smartphone device.

Fintech is proliferating in Indonesia and already spans a variety of industries, including fast payments, lending, retail investing, and repatriation. The newest form of electronic payment technology is mobile payment, that is, payments made via mobile devices (Thakur, 2013; Sanayei et al., 2011). It allows individuals and small enterprises to use mobile technology to send money to one another (Donovan, 2012). As Indonesians use electronic money, a shift toward a cashless e-money society is under way. Following the advent of online commerce, e-money is frequently used as a cash substi-

tute in retail transactions in major cities. In 2017, Indonesia had 143 million Fintech users, or about 54% of the country's population.

M-payment is a consumer and commercial solution for accepting and paying payments made remotely or quite close to the persons to whom the money is being delivered (Pernet-Lubrano, 2010; Pope et al., 2011). They can be made at the point of sale using SMS, a mobile application software, or a mobile terminal (Wang, 2012). Many sectors, large and small, employ m-payment strategies (Featherman & Wells, 2010; Wang, 2012). Nevertheless, despite their advantages, small business owners assess various factors when selecting one, such as mobility, productivity, reliability, and expense (Gunasekaran et al., 2011; Thakur, 2013).

However, despite rising mobile phone use rates, m-payment has not been extensively implemented (Wang, 2012). According to Donner and Escobari (2010), a further study linking determinants to customer happiness would reduce the skew in the present literature and enrich the insights available to practitioners. According to Lanz (2013) and Palvia (1996), further research would bring value to understanding factors connected to user satisfaction. User satisfaction with IT is related to its perceived usefulness, ease of use, trust, and intention to adopt m-payment. However, the relationship among these factors needs to be evaluated (Featherman & Wells, 2010; Hayashi, 2012; Thakur, 2013; Wang, 2012).

1. LITERATURE REVIEW AND HYPOTHESES

Fundamentally, the next phase in the evolution of banking will most likely be focused on mobile devices, which is rapidly increasing to include payment systems on all mobile phone platforms and retail operations (Fisher, 2011). Interbank Mobile Payment Services (IMPS) are a type of m-payment service that has increased the efficiencies of real-time transfers between bank accounts. In addition, they allowed payments to merchants via mobile phone devices, with the ultimate goal of the IMPS being the development of the revenue economy (Dash et al., 2014).

Zambonini and Zafar (2014) supported this observation when they discussed digital payment trends and the higher level of electronic payment transactions in high-income countries. In these economically developed countries, both mobile device ownership and regular Internet usage are relatively high. These countries are expanding m-payment systems, have a high level of internet banking, and use debit and credit cards extensively. On the other hand, less developed countries have a high rate of mobile phone usage but a high rate of cash payments (Zambonini & Zafar, 2014). Zambonini and Zafar (2014) focused on mobile payment innovation in countries transitioning to developed status.

According to Hayashi (2012), three types of mobile payments can be made. One can make direct payments between two customers or one consumer and a small company owner. According to the second type, mobile devices can be used to make payments for goods or services purchased online. Finally, mobile devices can be utilized on-ground, particularly at retail outlets.

An m-payment ecosystem includes Near Field Communications technology, mobile applications, online checkout wallets, and mobile carrier billing (Parnes et al., 2013). Mobile payment research will be more effective if it focuses on technology advances in a larger ecosystem (Hedman & Henningsson, 2012). M-PESA is a highly successful mobile phone payment service system that incorporates electronic bill payment introduced in Kenya (Kuriyan et al., 2012).

Remote mobile payments can be made using SMS, a mobile application program (Pope et al., 2011), or a mobile terminal at a retail location (Pernet-Lubrano, 2010). Amazon.com, PayPal, and other companies offer mobile payment apps that enable remote and near-field transactions (Pernet-Lubrano, 2010). Proximity payments are made using proximity devices, such as mobile phones that feature NFC chips (Pope et al., 2011). Google Wallet is a service that lets users enter their credit or debit card information into the system (Pernet-Lubrano, 2010; Pope et al., 2011).

http://dx.doi.org/10.21511/im.18(2).2022.16 187

Pourali (2014) divides m-payments into three categories: micropayments (under ten dollars), mobile payments (based on SMS/MMS technology), and proximity payments (using message transfer protocols). However, Chandra et al. (2010) divide m-payment applications into two groups. First, remote m-payment applications include three types of m-payments: 1) mobile services like news and location information; 2) payments for online purchases; and 3) person-to-person (P2P) payments. Second, close-proximity m-payments include m-parking, point-of-sale payments, and ATM transactions.

Oakes (2011) explains how independent workers in trades and service provision, who are a type of SME, prefer to use an electronic system because it reduces their reliance on checks and increases their certainty about receiving payment immediately. Consequently, they are willing to pay fees for these services.

The various types of m-payments' market success often result from having a large number of adopters who are both customers and merchants (Slade et al., 2013). However, Pope et al. (2011) explore an intriguing potential effect of having many users in a confined market area: it can stifle the advance of m-payment innovation, as seen in the highly developed US market. Because the market has progressed to such an extent, existing procedures to which customers have grown accustomed are more likely to be preserved, and the saturation level may impede the emergence of new forms of m-payment (Pope et al., 2011).

Nonetheless, the predicted increase in smartphone use in the markets of economically advanced countries may create prospects for creating new kinds of mobile payments because smartphone adoption in these markets has not yet reached its maximum development (Pope et al., 2011). Similarly, many nations are still in the early stages of adopting m-payment technology. It is in these countries that new and creative mobile payment systems are most likely to be created and accepted (Pope et al., 2011). Moreover, innovation can originate in non-financial services such as music, video on demand, and location-based services that supplement financial transactions (Thakur, 2013). On the other hand, mobile payment methods will

need to become "exceptionally convenient, fast, secure, affordable, and widely accepted" to substitute traditional cash and credit card payments (Holmes, 2011, p. 138).

Furthermore, retailers might not take mobile payments from their clients for four main reasons. First, the merchant might be concerned that the costs imposed and passed on to them are excessive compared to the revenue generated by the sale. Second, some merchants are concerned that their payments may never be received. Third, merchants might lack the necessary equipment to accept mobile payments, and, fourth, the merchant may not have a business relationship with the payment processor or network (Hayashi, 2012).

Payments made with mobile devices can be integrated with other corporate services such as marketing, advertising commerce, banking, and identification. Each of these features can add value to the business while also encouraging customers to begin and continue using mobile payment solutions (Pernet-Lubrano, 2010). As a result of rapid changes in m-payment technology, ongoing study is required to ensure that all available prospects for technology adoption are pursued (Mathew et al., 2014). A cloud-based wallet could be one of the next conceivable applications for m-payments; it could dramatically alter customer perceptions of their capacity to make payments in an even more straightforward manner than the choice of a wider range of payment devices than just cellphones (Pernet-Lubrano, 2010).

Some small business owners have difficulty grasping the importance of mobile payments (Hammermaster, 2010). Several studies recommend assessments to identify the drivers of user happiness in small businesses (Palvia, 1996; Donner & Escobari, 2010; Lanz, 2013). People in charge of small businesses must frequently multitask and often make payments and other banking-related choices throughout the day (Darsow & Listwan, 2012). Accepting payments via mobile devices can make this process go more smoothly, which is especially significant for small business owners (Darsow & Listwan, 2012). Furthermore, small business owners and operators realize that it is increasingly necessary to offer customers payment options that result in customer loyalty

Perceived Usefulness Intention to Adopt

External Variables

Perceived Eased of Use

Actual Use

Figure 1. Technology acceptance model

(Hammermaster, 2010). Moreover, they need this kind of payment option to stay competitive in the near term and thrive in the long term (Alexander et al., 2011).

In general, IT satisfaction has been linked to ease of use and efficiency (Geho & Frakes, 2013). Small business users' satisfaction with digital payment technology, on the other hand, is a relatively new type of IT, and it has only been investigated in terms of its link with ease of use and efficiency in general technology satisfaction research (Hayashi, 2012). Despite the obvious advantages of using mobile payment methods, their adoption is rising moderately (Pope et al., 2011).

The most significant concern is that the community of small companies has a limited understanding of its benefits (Hammermaster, 2010; Hayashi, 2012). Consequently, it is necessary to investigate the relationships among user contentment, simplicity of use, and productivity of mobile payment systems (Donner & Escobari, 2010; Slade et al., 2013). Slade et al. (2013) related small company users' resistance to implementing m-payment to ease of use and productivity. They suggested that future studies should focus on merchant readiness or factors of m-payment acceptance. They also noted the importance of analyzing the relationship between ease of use (Dong-Hee, 2010), productivity (Slade et al., 2013), and user satisfaction.

Davis (1989) first presented the Technology Acceptance Model/TAM (see Figure 1). TAM is based on the earlier Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975). According to the TRA hypothesis, several factors influence people's

decisions to use new technology. Two beliefs make up the attitude: Perceived Usefulness (PU) and Perceived Ease-of-Use (PEOU). Davis (1989) defined the variables PU and PEOU as "the degree to which a person believes that using a particular system would improve users' job performance" It is a metric that measures how confident customers are that adopting a given technology will improve their performance. He also defined PEOU as "the degree to which a person believes that using a particular system would be effort-free." It measures users' confidence that they can use the technology quickly and without problems. In m-payments, smooth transactions signify system usefulness. Before adopting new technology, consumers critically evaluate all its advantages.

In the context of m-payment, smooth transactions include online utility bill payment, mobile phone internet data recharge, sending and receiving money, mobile shopping, balance transfer, and online ticket booking. Before adopting new technology, consumers evaluate all its advantages.

PU has also been empirically confirmed as a significant predictor of inclination to adopt new technology (Arvidsson, 2014; Duane et al., 2014). Kim et al. (2010) investigated how user-centric and system aspects of m-payments affect different categories of users. They discovered that PU had a considerable favorable impact on m-payment usage. Customers like m-payment technology because it is less expensive, convenient, adaptable, and efficient.

Even if potential users believe that the application is beneficial, they might also believe that the system is too complex to use, according to Davis (1989). Despite the benefits of the app, users are unwilling to give the time and effort it takes to use it. In contrast, a high level of user-friendliness tends to positively affect users and foster a positive attitude toward using new technologies. PEOU has a significant impact on consumer satisfaction and a positive attitude toward using m-payments. People who trust in relevant technologies will put in minimal efforts, if none at all (Davis, 1989).

PEOU also refers to a new system's or technology's relative complexity, substantially impacting customer intentions to embrace it (Rogers, 2003). The frequency users engage with the system might also indicate how easy it is to use. PEOU answers that established routine methods might be used in the current scenario to lessen the uncertainty (Eriksson & Sharma, 2003). According to Sikdar et al. (2015), PEOU is a strong predictor of a good attitude toward m-payment and consumer satisfaction.

Since mobile payment services involve a higher level of risk than a traditional payment transaction, trust becomes a crucial factor in influencing the adoption of new mobile payment applications; it is the most crucial determinant influencing consumer perceptions of use (Mallat, 2007). Trust is one party's belief in another party to perform the particular transactions, expecting that those parties shall have the ability to perform, monitor, and control (Mayer et al., 1995). Trust can also be defined as the willingness to be loyal to a service provider, expecting a positive outcome regarding the service provider's future behavior (Zhou, 2016). In a social context, trust has several implications. For example, while using mobile phones, customers provide more personal and financial information, which might create concern regarding the level of security.

The term "attitude" refers to how consumers feel about accepting new ideas and behaviors. People's attitudes mirror their feelings, which they exhibit through their actions (Premkumara et al., 2008), meaning that attitudes change through time as people gain experience. A combination of cognitive concepts and emotional sentiments about an item goes into forming an attitude (Sianadewi et al., 2018). Attitudes toward a specific object are created, retained in memory, and easily accessible,

facilitating decision-making and improving decision-making quality (Fazio et al., 2000).

The prospective users' attitudes determine what he/she intends to do (Davis, 1989). The stronger the intention, the more likely the behavior will be carried out (Ajzen, 2011). Furthermore, declared intention is a person's tendency to select whether or not to act (Sianadewi et al., 2018). For example, one may wish to conduct an e-money transaction because of the convenience and ease of e-money use, which is more efficient than cash, protects consumer privacy, and cannot be counterfeited.

Attitudes may come as positive, negative, or neutral. This is because attitudes are evaluative judgments, either favorable or unfavorable, concerning objects, people, or events (Davis, 1989). Attitude toward innovation is a key intervening variable in the innovation adoption decision. Intention is affected by the user's attitude towards using the digital information system. Thus, attitude toward a specific digital information technology is conceptualized as a potential user's assessment of the desirability of that technology. If potential users have a favorable (positive) attitude, they will have a stronger intention to adopt, and if their attitude is unfavorable (negative), their intention to adopt will be weaker (Davis, 1989). Other studies similarly indicate that attitude positively influences the intention to adopt m-payment (Lee et al., 2007; Wu et al., 2014; Liébana-Cabanillas et al., 2015). Based on the explanations above, the framework of this study is presented in Figure 2.

The following research questions inquire into the extent to which ease of use and productivity are predictors of small business user satisfaction with m-payment systems:

- Q1. What is the relationship between perceived usefulness and users' attitudes?
- Q2. What is the relationship between perceived ease-of-use (PEOU) and user's attitudes?
- Q3. What is the relationship between trust and the user's attitudes?
- Q4. What is the relationship between attitude and the intention to adopt mobile payment?

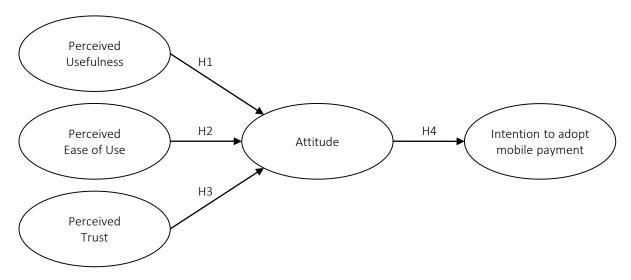


Figure 2. Research framework

Consequently, this study tests the following hypotheses:

- H1: Perceived usefulness positively influences attitude.
- H2: PEOU positively influences attitude.
- H3: Trust positively influences attitude.
- H4: Attitude positively influences the intention to adopt.

These hypotheses were tested to determine the significance of the results with SEM techniques using the LISREL program. The testing criteria have a cut-off value of 1.96. If λ (lambda) has t-count > 1.96, then the value of λ (lambda) is said to be significant.

2. METHODS

This study used a quantitative approach. Data were collected from 169 respondents through an online questionnaire. The survey was conducted in May-June 2019 and shared among individuals who live in Surabaya and recognize the services of LinkAja mobile payment. LinkAja is an electronic-based financial service that provides hassle-free transactions in credit top-up, merchant payment, bill payment, buying game vouchers, donations, and money transfers from a smartphone. The mobile payment service was just launched on March 1, 2019. It was

developed upon an earlier mobile payment service, T-Cash. T-Cash was provided by the Telkomsel company, the front-runner in Indonesia's telecommunication market.

In this study, the population used mobile payment in LinkAja application, and the population was based in the region in Surabaya. The sample size was 169 respondents, and it is suitable for a study that uses Structural Equation Modeling (SEM) data analysis techniques with the Lisrel program. The members of the population had the following characteristics:

- 1. Their minimum age was 17 years because at that age respondents are considered able to make decisions.
- 2. They used the LinkAja mobile payment application.
- 3. They had never used LinkAja mobile payment application.
- 4. They were domiciled in Surabaya.
- 5. They knew about the T-cash application as a mobile payment.

This study used SEM (Structural Equation Modeling) LISREL8.80 program as an analysis technique. SEM comes from combining simultaneous equation regression models that have been developed in econometrics and measuring models that have been developed in psychology and soci-

ology. Simultaneous equation regression was developed to accommodate structural relationships between variables. The measurement model related to variables is inherent in the model. In SEM, the measurement problem is not done separately but in the SEM model itself.

3. RESULTS AND DISCUSSION

The characteristics of respondents based on age, gender, and occupation are presented as follows. Of the one hundred sixty-nine (169) respondents, the highest percentage by the group was 21-40 years (51%), then followed by 17-20 years old (45%), and then above 40 years (4%). Male respondents consisted of 64% of the population. Respondents were divided into several occupations, namely high school student (30%), university student (35%), employee (20%), and entrepreneur (15%).

A summary of descriptive statistics is shown in Table 1. The results show that most respondents approved of the usefulness of LinkAja mobile payment services. The overall perceived usefulness variable obtained an average value of 3.857. The perceived ease of use

variable was measured using three indicators based on the table. The total average value obtained for this variable was 3.700. This finding shows that, on average, respondents agreed that LinkAja has good ease of use. However, on the variable of perceived trust, the average value was 2.430. It means the respondents disapproved of the trust indicators.

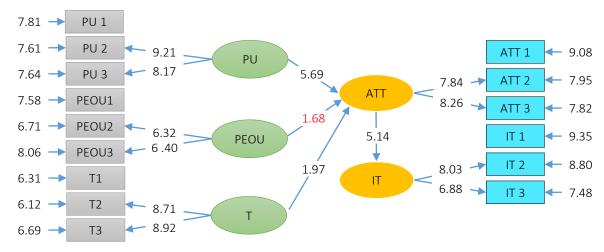
The results show that the attitude variable had an average value of 3.78, indicating that respondents approved the attitude indicators. Table 1 also shows that the intention to adopt received the highest value of 3.953 and the lowest value of 3.876. Overall, the intention to adopt received an average value of 3.917. It can be concluded that respondents approved the intention to adopt indicators.

As shown in Figure 3, the results of hypothesis testing support the following conclusions. *H1* has a t-value of 5.69 (t-value > t-statistic 1.96), this hypothesis is accepted. *H2* has a t-value of 1.68 (t-value < t-statistic 1.96), this hypothesis is rejected. *H3* has a t-value of 1.97 (t-value > t-statistic 1.96), this hypothesis is accepted. *H4* has a t-value of 5.14 (t-value > t-statistic 1.96), this hypothesis is accepted.

Table 1. Summary of descriptive statistics

Variable	Mean	St. Dev.	T-value	Skewness	Kurtosis	Minimum	Freq.	Maximum	Freq.
PU1	3.834	0.850	58.647	-0.499	0.352	1.000	2	5.000	37
PU2	3.893	0.873	57.968	-0.714	0.805	1.000	3	5.000	42
PU3	3.846	0.845	59.161	-0.299	-0.244	1.000	1	5.000	40
PEOU1	3.669	0.829	57.533	-0.265	-0.093	1.000	1	5.000	40
PEOU2	3.728	0.785	61.748	-0.076	-0.478	2.000	1	5.000	25
PEOU3	3.704	0.828	58.149	-0.290	-0.066	1.000	8	5.000	27
T1	2.408	0.984	31.801	0.278	-0.457	1.000	33	5.000	3
T2	2.385	0.964	32.170	0.332	-0.487	1.000	31	5.000	2
T3	2.479	0.939	34.319	0.082	-0.484	1.000	28	5.000	2
ATT1	3.686	0.874	54.822	-0.316	-0.015	1.000	2	5.000	30
ATT2	3.876	0.832	60.533	-0.578	0.605	1.000	2	5.000	38
ATT3	3.757	0.883	55.305	-0.448	0.072	1.000	2	5.000	34
IT1	3.876	0.803	62.727	-0.538	0.412	1.000	1	5.000	35
IT2	3.953	0.858	59.902	-0.596	0.119	1.000	1	5.000	47
IT3	3.923	0.809	63.027	-0.677	0.640	1.000	1	5.000	38

Note: PU1 – Using LinkAja would enable users to pay more quickly, PU2 – Using LinkAja makes it easier for users to conduct transactions, PU3 – Users would find LinkAja helpful in paying, PEOU1 – When I use LinkAja, the process will be clear and understandable, PEOU2 – I believe it is easy for me to become skilful at using LinkAja as a mobile payment, PEOU3 – I believe that LinkAja is easy to use, T1 – I believe that the LinkAja service provider will act ethically when capturing, retaining, processing, and managing my personal data, T2 – I believe that the LinkAja service providers act honestly in dealing with consumers, T3 – I believe that the LinkAja service provider implements adequate security measures to secure my personal data, ATT1 – Using the LinkAja service is a good idea, ATT2 – I like the idea of using the LinkAja services, ATT3 – I would feel that using the LinkAja application is pleasant, IT1 – I intend to use the LinkAja technology system as often as needed, IT2 – I will use LinkAja regularly in the future, IT3 – Using LinkAja for handling my transactions is something I would do.



Note: Chi = Square = 116 .79, df = 83, p-value = 0.00858, RMSEA = 0.049.

Figure 3. Path diagram of T-values

In addition, the direct effects among the variables are presented by:

$$ATT = 0.71 \cdot PU + 0.24 \cdot PEOU + 0.19 \cdot T$$
,
Errorvar.=0.11, $R^2 = 0.6$
 $(0.12) (0.14) (0.096) (0.035)$
 $5.69 \quad 1.68 \quad 1.97 \quad 3.04$
 $IT = 0.79 \cdot ATT$,
Errorvar.=0.074, $R^2 = 0.71$
 (0.15) (0.029)
 5.14 2.51

Meanwhile, the indirect effects are presented by:

	PU	PEOU	T
	•••	•••	•••
ATT		•••	•••
IT	0.56	0.19	0.15
	(0.11)	(0.11)	(0.08)
	5.16	1.71	1.95

These results show that perceived usefulness has a loading factor value of 0.71 with a t-value of 5.69 (> 1.96). This means that perceived usefulness brings a positive influence on attitude. Perceived ease of use has a loading factor value of 0.24 and a t-value of 1.68. It means perceived ease of use does not bring an influence on attitude. Similarly, for the variable of trust, the variable has a loading factor

value of 0.19 and a t-value of 3.04. Trust also brings a positive influence on attitude. Attitude variable has a loading factor value of 0.79 and a t-value of 3.04. This means that attitude brings a positive influence on intention to adopt.

Next, the presence of indirect effect is shown for the relationship between perceived usefulness and intention to adopt, as indicated in the t-value (5.16). This indirect effect is moderated by the attitude variable. However, the indirect effects of both perceived ease of use and trust in intention to adopt are not present. The t-values for both variables are less than 1.96 (limit value).

H1 has a t-value of 5.69 (t-value > t-statistic 1.96). This supports the hypothesis that perceived usefulness has a positive and significant effect on attitude. This finding is consistent with Mwiya et al. (2017). They found that perceived usefulness positively affects technology use. Respondents perceived the LinkAja m-payment process to be efficient and to be able to improve users' productivity.

H2 has a t-value of 1.68 (t-value < t-statistic 1.96). This does not support the hypothesis that perceived ease of use positively affects attitude. This finding does not follow the results of Lee et al. (2007) and Sikdar et al. (2015), which show that a positive perception of ease of use is a significant antecedent to attitude. Ease of use using LinkAja m-payment is not a contributing factor to users' attitudes.

H3 has a t-value of 1.97 (t-value > t-statistic 1.96). This supports the hypothesis that trust positively and significantly affects attitude. This finding aligns with Mwiya et al. (2017), who state that trust positively affects attitude. Respondents agree that LinkAja m-payment is a trusted financial service that causes a positive attitude.

H4 has a t-value of 5.14 (t-value > t-statistic 1.96). This supports the hypothesis that attitude has a positive and significant effect on the intention to use. This finding follows Liébana-Cabanillas et al. (2015) that attitude positively affects intention to adopt new technology. In general, adopting the LinkAja m-payment is a good idea as respondents have a positive attitude toward the application.

CONCLUSION

This study investigates the role of attitude in mitigating the effects of perceived usefulness, perceived ease of use, and perceived trust on the intention to use mobile payment technology. The following conclusions follow from the tests of hypotheses.

First, perceived usefulness positively influences attitude. A more favorable attitude toward LinkAja mobile payment is associated with a higher perceived utility. As a result, providers should focus their marketing efforts on the advantages of using mobile payment services. LinkAja, for example, allows for faster financial transactions, which is ideal for users with limited time.

Second, attitudes toward LinkAja mobile payment are unaffected by perceived ease of use. If perceived ease of use is taken for granted, its influence on users' attitude is less appreciated. This study contradicts past findings and should be investigated further.

Third, perceived trust positively influences attitude. LinkAja users have a more positive attitude when they have more trust, and the provider should prioritize assuring the reliability of LinkAja service. Especially with the influx of new participants into the business, the service must be recognized as reliable and secure. Users must recognize the service as reliable and secure, especially with the influx of new participants. Finally, attitude positively impacts the intention to use LinkAja mobile payment. A more upbeat attitude will increase the likelihood of using LinkAja's mobile payment services.

These results imply that providers of new digital technology should pay more attention to promoting the usefulness of their services. It is also essential that they consider the element of trust in their services. In order to get more evidence, further research is needed on other new mobile payment services in Indonesia, such as Dana, Dompetku, Sakuku, Dimo Pay, and iPaymu.

AUTHOR CONTRIBUTIONS

Conceptualization: Murpin Josua Sembiring, Wahyudi Wibowo, Grace Citra Dewi. Data curation: Murpin Josua Sembiring, Wahyudi Wibowo, Grace Citra Dewi. Formal analysis: Murpin Josua Sembiring, Wahyudi Wibowo, Grace Citra Dewi.

Funding acquisition: Murpin Josua Sembiring.

Investigation: Murpin Josua Sembiring, Grace Citra Dewi. Methodology: Murpin Josua Sembiring, Grace Citra Dewi.

Project administration: Murpin Josua Sembiring, Wahyudi Wibowo.

Resources: Murpin Josua Sembiring, Wahyudi Wibowo.

Software: Wahyudi Wibowo.

Supervision: Murpin Josua Sembiring, Grace Citra Dewi. Validation: Murpin Josua Sembiring, Wahyudi Wibowo.

Visualization: Murpin Josua Sembiring, Grace Citra Dewi. Writing – original draft: Murpin Josua Sembiring, Wahyudi Wibowo, Grace Citra Dewi. Writing – review & editing: Murpin Josua Sembiring, Wahyudi Wibowo, Grace Citra Dewi.

REFERENCES

- Ajzen, I. (2011). The theory of planned behavior: Reactions and reflections. *Psychology and Health*, 26(9), 1113-1127. https://doi.org/1 0.1080/08870446.2011.613995
- Alexander, C., Lancaster, T., Gibson, S., & Pryor, M. (2011). Technology support for small businesses. *International Journal* of Education Research, 6(2), 65-76.
- Arjunwadkar, P. Y. (2018). The technology driving disruption in the financial services industry. Imprint Auerbach Publications.
- Arvidsson, N. (2014). Consumer attitudes on mobile payment services result from a proof-ofconcept test. *International Journal* of *Bank Marketing*, 32(2), 150-170. https://doi.org/10.1108/IJBM-05-2013-0048
- Chandra, S., Srivastava, S., & Theng, Y. (2010). Evaluating the role of trust in consumer adoption of mobile payment systems: An empirical analysis. Communications of the Association for Information Systems, 27(1), 561-588. https://doi. org/10.17705/1CAIS.02729
- Darsow, M., & Listwan, L. (2012). Corporate practitioners moving to mobile banking: Key factors driving adoption. *Journal of Payments Strategy & Systems*, 5(4), 360-372. Retrieved from https:// hstalks.com/article/1386/corporate-practitioners-moving-to-mobile-banking-k/
- Dash, M., Bhusan, P. B., & Samal, S. (2014). Determinants of customers' adoption of mobile banking: An empirical study by integrating diffusion of innovation with attitude. *Journal of Internet Banking and Commerce*, 19(3), 1-21.
- 8. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of

- information technology. *MIS Quarterly*, *13*(3), 319-340. http://dx.doi.org/10.2307/249008
- 9. Dong-Hee, S. (2010).

 Modeling the interaction of users and mobile payment system: Conceptual framework. *International Journal of Human-Computer Interaction*, 26(10), 917-940. https://doi.org/10.1080/10447318. 2010.502098
- Donner, J., & Escobari, M. X. (2010). A review of evidence on mobile use by micro and small enterprises in developing countries. *Journal of International Development*, 22(5), 641-658. https://doi.org/10.1002/jid.1717
- 11. Donovan, K. (2012). Ensuring Financial Inclusion via Mobile Money. *Journal of E-Governance*, 35(2), 71-76. https://doi.org/10.3233/GOV-2012-0296
- Duane, A., O'Reilly, P., & Andreev, P. (2014). Realizing M-payments: modeling consumers' willingness to M-pay using smartphones. Behavior and Information Technology, 33(4), 318-334.
- Eriksson, K., & Sharma, D. D. (2003). Modeling uncertainty in buyer-seller relationships. *Journal of Business Research*, 56(12), 961-970. http://dx.doi.org/10.1016/S0148-2963(01)00331-9
- 14. Fazio, R. H., Ledbetter, J. E., & Towles-Schwen, T. (2000). On the costs of accessible attitudes: Detecting that the attitude object has changed. *Journal of Personality and Social Psychology*, 78(2), 197-210. http://dx.doi.org/10.1037/0022-3514.78.2.197
- Featherman, M. S., & Wells, J. D. (2010). The intangibility of e-services: Effects on perceived risk and acceptance. SIGMIS Database, 41(1), 110-131. https://doi.org/10.1145/1795377.1795384

- 16. Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior. Addison-Wesley.
- 17. Fisher, D. (2011). Giant electronics show a banking roadmap. *ABA Banking Journal*, 103(2), 28-29. Retrieved from http://connection.ebscohost. com/c/articles/58639815/giant-electronics-showbanking-roadmap
- 18. Geho, P. R., & Frakes, J. (2013). Financing for small business in a sluggish economy versus conflicting impulses of the entrepreneur. *Entrepreneurial Executive*, 18(1), 89-101.
- Gunasekaran, A., Rai, B. K., & Griffin, M. (2011). Resilience and competitiveness of small and medium size enterprises: an empirical research. *International Journal of Production Research*, 49(18), 5489-5509. https://doi.org/ 10.1080/00207543.2011.563831
- 20. Hammermaster, G. (2010).

 Payment processing tips for small businesses. *Journal of Accountancy*, 210(2), 22-35. Retrieved from http://www.journalofaccountancy.com/Issues/2010/Aug/20102953
- 21. Hayashi, F. (2012). Mobile
 Payments: What's in it for
 consumers? *Economic Review*,
 97(Q1), 35-66. Retrieved from
 https://ideas.repec.org/a/fip/fedker/y2012iqip35-66nv.97no.1.html
- Hedman, J., & Henningsson, S. (2012). Competition and collaboration shaping the digital payment infrastructure. Proceedings of the 14th Annual International Conference on Electronic Commerce (pp. 178-185). https://doi. org/10.1145/2346536.2346571
- 23. Holmes, G. (2011). Card and mobile payment opportunities: A framework to consider potential winners and lowers

- and a snapshot of the future payments landscape in Africa. *Journal of Payments Strategy & Systems*, 5(2), 134-142. Retrieved from https://www.ingentaconnect.com/contentone/hsp/ jpss/2011/00000005/00000002/ art00004
- 24. Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, 26(3), 310-322. https://doi.org/10.1016/j.chb.2009.10.013
- 25. Kuriyan, R., Nafus, D., & Mainwaring, S. (2012).
 Consumption, technology, and development; The "poor" as "consumer." *Annenberg School for Communication & Journalism*, 8(1), 1-12. Retrieved from http://www.imtfi.uci.edu/files/articles/itid_mpesa_article.pdf
- 26. Lanz, J. (2013). Helping small and midsized businesses succeed in a technology-driven world. *The CPA Journal*, 8(11), 6-9. Retrieved from https://www.proquest. com/openview/4d8a43c27480 46a1013517798594f04d/1?pqorigsite=gscholar&cbl=41798
- 27. Lee, K., Lee, H., & Kim, S. (2007). Factors influencing the adoption behavior of mobile banking: A South Korean perspective. *Journal of Internet Banking & Commerce*, 12(1), 1-9. Retrieved from https://www.icommercecentral.com/open-access/factors-influencing-the-adoption-behavior-of-mobile-banking-a-south-korean-perspective.php?aid=38487
- Liébana-Cabanillas, F., de Luna, I. R., & Montoro-Rios, F. J. (2015). User behavior in QR mobile payment system: the QR payment acceptance model. *Journal of Technology Analysis & Strategic Management*, 27(9), 1031-1049. https://doi.org/10.1080/09537325. 2015.1047757
- 29. Mallat, N. (2007). Exploring consumer adoption of mobile payments A qualitative study. *Journal of Strategic Information Systems*, 16(4), 413-432. https://doi.org/10.1016/j.jsis.2007.08.001
- 30. Mathew, M., Magnier-Watanabe, R., Pratheeba, S., & Balakrishnan,

- N. (2014). Assessing technology differences in electronic and mobile payment systems among developed and developing countries. *International Journal of Innovation and Technology Management*, 11(2), 1450005. https://doi.org/10.1142/S0219877014500059
- Mayer, R., Davis, J., & Schoorman, F. (1995). An integrative model of organizational trust. *The Academy of Management Review*, 20(3), 709-734. https://doi. org/10.2307/258792
- Mohammadi, H. A. (2015). Study of mobile banking loyalty in Iran. Computers in Human Behavior, 44, 35-47. https://doi.org/10.1016/j. chb.2014.11.015
- 33. Mwiya, B., Shikaputo, F., Kabala, C., Kaulung'ombe, E., Siachinji, B., & Beenzu, S. (2017). Examining factors influencing E-banking adoption: Evidence from bank customers in Zambia. American Journal of Industrial and Business Management, 7(6), 741-759. https://doi.org/10.4236/ajibm.2017.76053
- 34. Narteh, B., Mahmoud, M. A., & Amoh, S. (2017). Customer behavioral intentions towards mobile money services adoption in Ghana. *Service Industries Journal*, *37*(7-8), 426-447. https://doi.org/10.1080/02642069.2017.1 331435
- 35. Oakes, L. (2011). Faster payments: Managing customer expectations. *Journal of Payments Strategy & Systems*, 5(1), 30-37. Retrieved from https://hstalks.com/article/1327/faster-payments-managing-customer-expectations/?business
- Palvia, P. C. (1996). A model and instrument for measuring small business user satisfaction with information technology. *Information and Management*, 31(3), 151-163. https://doi.org/10.1016/S0378-7206(96)01069-5
- 37. Parnes, L., Shapiro, T., Durrette, El., Lee, S., & Staples, M. (2013). FTC recommends consumer protections for mobile payment industry. *Intellectual Property &*

- Technology Law Journal, 25(6), 19-22.
- 38. Pernet-Lubrano, S. (2010).
 Mobile Payments: Moving
 Towards a Wallet in the Cloud?
 Communications & Strategies,
 79(3), 63-72. Retrieved from
 https://ideas.repec.org/a/idt/
 journl/cs7904.html
- 39. Pope, M., Pantages, R., Enachescu, N., Dinshaw, R., Joshlin, C., Stone, R., Austria, P. A., & Seal, K. (2011). Mobile payments: The reality on the ground in selected Asian countries and the United States. *International Journal of Mobile Marketing*, 6(2), 88-104.
- 40. Pourali, A. (2014). The presentation of an ideal safe SMS based model in mobile electronic commerce using encryption hybrid algorithms AES and ECC. New Marketing Research Journal, 115-132. Retrieved from https://nmrj.ui.ac.ir/article_17738_dd1829e02d62a596dd441c9e852e-abaa.pdf
- 41. Premkumara, G., Ramamurthy, K., & Liu, H. N. (2008). Internet messaging: an examination of the impact of attitudinal, normative, and control belief systems.

 Information & Management, 45(7), 451-457. https://doi.org/10.1016/j.im.2008.06.008
- Rogers, E. M. (2003). Diffusion of innovations (5th ed.). The Free Press.
- 43. Sanayei, A., Ranjbarian, B., Shaemi, A., & Ansari, A. (2011). Determinants of Customer Loyalty Using Mobile Payment Services in Iran. *Interdisciplinary Journal of Contemporary Research in Business*, 3(6), 22-35.
- 44. Shankar, A., & Datta, B. (2018). Factors affecting mobile payment adoption intention: an Indian perspective. *Global Business Review*, 19(3_suppl), S72-S89. Retrieved from https://journals.sagepub.com/doi/full/10.1177/0972150918757870
- 45. Sianadewi, J. H., Widyarini, L. A., & Wibowo, W. (2018). Pengaruh perceived social presence, perceived ease of use, perceived usefulness, dan attitude towards

- online shopping pada Jakarta Notebook.com. *Kajian Ilmiah Mahasiswa Manajemen*, 6(2), 104-115. (In Indonesian). Retrieved from http://journal.wima.ac.id/ index.php/KAMMA/article/ view/1778
- 46. Sikdar, P., Kumar, A., & Makkad, M. (2015). Online banking adoption: a factor validation and satisfaction causation study in the context of Indian banking customers. *International Journal* of Bank Marketing, 33(6), 760-785. http://doi.org/10.1108/IJBM-11-2014-0161
- 47. Slade, E. L., Williams, M. D., & Dwivedi, Y. K. (2013). Mobile payment adoption: Classification and review of the extant literature. *Marketing Review*, *13*(2), 167-190. https://doi.org/10.1362/14693471 3X13699019904687
- 48. Tan, G. W. H., Ooi, K. B., Chong, S. C., & Hew, T. S. (2014). NFC

- mobile credit card: the next frontier of mobile payment? *Telematics and Informatics*, 31(2), 292-307. https://doi.org/10.1016/j. tele.2013.06.002
- 49. Thakur, R. (2013). Customer adoption of mobile payment services by professionals across two cities in India: An empirical study using modified technology acceptance model. *Business Perspectives & Research*, 1(2), 17-29. https://doi.org/10.1177/2278533720130203
- Vinitha, K., & Vasantha, S. (2017).
 Factors influencing consumer's intention to adopt digital payment a conceptual model. *Indian Journal of Public Health Research and Development*, 8(3), 170-175.
- 51. Wang, A. (2012). A preliminary model for mobile payment acceptance. *International Journal of Mobile Marketing*, 7(2), 37-51.

- 52. Wu, M., Jayawardhena, C., & Hamilton, R. (2014). A comprehensive examination of internet banking user behavior: evidence from customers yet to adopt, currently using, and stopped using. *Journal of Marketing Management*, 30(9-10), 1006-1038. https://doi.org/1 0.1080/0267257X.2014.935459
- 53. Zambonini, P., & Zafar, S. (2014).

 Mobile payment innovation in
 the Arabian Gulf. *Journal of*Payments Strategy & Systems,
 8(3), 307-315. Retrieved from
 https://hstalks.com/article/2912/
 mobile-payment-innovation-inthe-arabian-gulf/
- 54. Zhou, T. (2016). Understanding users' switching from online stores to mobile stores.

 Information Development, 32(1), 60-69. https://doi. org/10.1177/0266666914526605

http://dx.doi.org/10.21511/im.18(2).2022.16